

What is claimed is:

1. A laser apparatus comprising:

a semiconductor laser element which emits first  
laser light having a first wavelength;

5 a surface-emitting semiconductor element which is  
excited with said first laser light, emits second laser light  
having a second wavelength which is longer than said first  
wavelength, and has an active layer and a first mirror  
arranged on one side of said active layer;

10 a second mirror which is arranged outside said  
surface-emitting semiconductor element so that said first and  
second mirrors form a resonator in which said second laser  
light resonates; and

15 a modulation unit which modulates said surface-  
emitting semiconductor element.

2. A laser apparatus according to claim 1, wherein said  
surface-emitting semiconductor element has a pn junction, and  
said modulation unit modulates the surface-emitting  
semiconductor element by varying a voltage applied to the pn  
junction.

20 3. A laser apparatus according to claim 1, wherein said  
surface-emitting semiconductor element has a Schottky  
junction, and said modulation unit modulates the surface-  
emitting semiconductor element by varying a voltage applied  
to the Schottky junction.

25 4. A laser apparatus according to claim 1, wherein said

surface-emitting semiconductor element comprises a structure for controlling a spatial mode of said second laser light.

5. A laser apparatus according to claim 4, wherein said structure is realized by a pinhole spatial filter being  
5 arranged at a light-exit end surface of said surface-emitting semiconductor element, having a pinhole, and allowing passage of said second laser light emitted by the surface-emitting semiconductor element, through only the pinhole.

10 6. A laser apparatus according to claim 4, wherein said first mirror has a limited area, is arranged in parallel with a light-exit end surface of said surface-emitting semiconductor element, and realizes said structure.

15 7. A laser apparatus according to claim 4, wherein said active layer is formed in only a limited area in a plane parallel to a light-exit end surface of said surface-emitting semiconductor element, and realizes said structure.

20 8. A laser apparatus according to claim 4, wherein said structure has a size which is 0.1 to 10 times as large as a diameter to which said second laser light spreads at a position of the structure for controlling the spatial mode of the second laser light.

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